

## THE OFFICE ACTION

The following rejections were noted in the Office Action.

Claims 21 and 24-29 were rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent 6,110,546 to Honda et al. ("Honda").

Claims 22, 23, and 30 were rejected under 35 U.S.C. §103(a) as being unpatentable over Honda in view of U.S. Patent 3,646, 155 to Scott et al. ("Scott").

## REMARKS

The Office Action mailed October 3, 2003 has been given careful consideration by the Applicants. Reconsideration of the application is hereby respectfully requested in view of the above amendments and the following comments. Claims 21-30 remain pending in the application.

### I. Claims 21 and 24-29 are not anticipated by Honda

The Examiner rejected claims 21 and 24-29 under 35 U.S.C., 102(e) as being anticipated by Honda. Applicants respectfully disagree that the claims of the present invention are unpatentable over Honda for at least the following reasons.

First, as detailed in previous submissions, the decorative layer of Honda comprises a two-phase thermoplastic elastomer blend of a olefinic resin and an elastomer rubber. This is in contrast to the present invention which recites a single phase abrasion resistant decorative layer comprising a crosslinkable thermoplastic. This crosslinkable thermoplastic is a single-phase thermoplastic copolymer to which silane groups have been grafted to effect crosslinking in the presence of water (page 9, lines 10 to page 12, line 3). Thermoplastics are chemically distinct from thermoplastic elastomers. Thermoplastic elastomers are multi-phased compositions in which the phases are intimately dispersed. The thermoplastic elastomers of Honda are blends of a hard thermoplastic with a soft elastomer rubber polymer. It is clear from Honda that only the rubber-phase is crosslinked (col. 4, lines 63 to col. 5, line 5). Because Honda fails to disclose or suggest a single phase abrasion resistant decorative layer, it fails to anticipate the present claims.

Second, Honda fails to anticipate the present claims because it fails to disclose or suggest an at least partially crosslinked thermoplastic. The Examiner attempts to equate the crosslinked ethylene- $\alpha$ -olefin copolymer rubber of the TPO of Honda with the crosslinkable thermoplastic of the present invention. Although both compounds are ethylene- $\alpha$ -olefin copolymers, the compound in Honda is a rubber, whereas the compound of the present application is a thermoplastic. As detailed in the previous Office Action, the Examiner was taking the position that once the thermoplastic ethylene-alpha-olefin copolymer of the present invention was at least partially crosslinked, it became the same as the ethylene-alpha-olefin copolymer rubber of Honda.

However, as detailed in the previously filed Appeal Brief, ethylene- $\alpha$ -olefin copolymer rubbers differ from ethylene- $\alpha$ -olefin copolymer thermoplastics in several important ways. First, the crystallinity is quite different between the two compounds. Ethylene- $\alpha$ -olefin rubbers (such as ethylene-propylene rubber) are random copolymers of ethylene and an alpha-olefin. They are non-crystalline materials used for toughening other polymers usually having typical glass transition temperatures of -30°C or lower. Ethylene-propylene thermoplastics, on the other hand, are typically stereospecific (isotactic) and have a greater degree of crystallinity. They are rigid compositions having a much higher glass transition temperature. The differences between ethylene- $\alpha$ -olefin thermoplastics and ethylene- $\alpha$ -olefin rubbers (elastomers) were highlighted in the copy of Table 8.1 from Polymer Chemistry by Malcolm P. Stevens, attached as Appendix B in the previous Brief. This table highlights and acknowledges the difference between ethylene-propylene plastics and ethylene-propylene copolymer elastomers.

The photocopied page provided by the Examiner from *Contemporary Polymer Chemistry*, 2<sup>nd</sup> Ed., does not prove his position. The Examiner cites this passage for the proposition that "elastomeric properties become more obvious once a **thermoplastic** is lightly cross linked." (emphasis added). However, the passage does not refer to thermoplastics, but rather to **polymers** in general. A thermoplastic may still possess the properties of a thermoplastic despite the presence of light crosslinking.

Thus, despite the Examiner's arguments, applicants submit that the crosslinkable ethylene- $\alpha$ -olefin rubber of the TPO in Honda is NOT the same as the ethylene- $\alpha$ -olefin copolymer thermoplastic used as the decorative layer in the present application. For at least these reasons Honda fails to anticipate the present claims.

Third, Honda fails to disclose a moisture crosslinkable polymeric compound. In this respect, Honda does disclose that the ethylene- $\alpha$ -olefin copolymer rubbers may be crosslinked. However, Honda only discloses the use of peroxide as a crosslinking agent (col. 4, lines 63-68, and col. 5, lines 1-5). As is known in the art, peroxide crosslinking agents are not moisture crosslinking agents. Thus, Honda fails to disclose a moisture crosslinkable thermoplastic for use as the decorative layer. For at least these reasons, Honda fails to anticipate the present claims.

## **II. Claims 22, 23, and 30 are not rendered obvious over Honda in view of Scott**

The Examiner rejected claims 22, 23, and 30 under 35 U.S.C. §103(a) as being unpatentable over Honda in view of Scott. Applicants respectfully disagree that the claims of the present invention are obvious over Honda in view of Scott.

Initially, there is no motivation to combine the two references. To properly combine references under 35 U.S.C. §103(a), there must be some suggestion or motivation to do so. Here, the Examiner states that Scott teaches "the crosslinking of olefin copolymer using a silane compounds such that the crosslinking may be carried out in two stages and yields a product that has extremely high resistance to stress cracking and could be employed in extruded articles. Accordingly, it would have been obvious to one having ordinary skill in the art to crosslink the ethylene-octene copolymer disclosed by Honda et al. with a silane compound given that Scott et al. specifically teach that doing so yields a product that has extremely high resistance to stress cracking and could be employed in extruded articles."

The Examiner improperly relies on the disclosure of Scott in making the above statement. As stated in column 5, lines 14-17, of Scott "[c]ross-linked polyolefins produced according to this invention are characterized by physical properties which are comparable to those obtained by conventional methods i.e. by

organic peroxide cross-linking." (emphasis added). Thus the resistance to stress cracking in crosslinked polyolefins is no greater when using the silane compound disclosed in Scott as compared to using an organic peroxide crosslinking method. Thus, the silane crosslinking disclosed in Scott would provide no additional motivation for one seeking to improve stress cracking resistance in an extruded polyolefin.

Further, there is no indication in Honda that superior stress cracking resistance is desired. Honda simply seeks to provide an automobile weatherstrip which is both economical to produce and does not undergo discoloration (col. 1, lines 53-55). Thus, one practicing the invention of Honda would not be motivated to increase the resistance to stress cracking in the weatherstrips. Similarly, even assuming the presence of such motivation, there would be no suggestion to apply the teachings of Scott in the manufacture of such weatherstrips since, as discussed above, the method disclosed in Scott only provides crosslinked polyolefins having comparable properties to those obtained via conventional crosslinking methods.

The Examiner does not address the above arguments in the previous Office Action and continues to maintain that Scott specifically teaches that the crosslinking of olefin copolymers using a silane compound yields a product that has extremely high resistance to stress cracking and that it would have been obvious to one having ordinary skill in the art to crosslink the ethylene-octene copolymer of Honda with a silane compound to yield a product that has extremely high resistance to stress cracking. As detailed above, however, the physical properties provided by silane crosslinking are no greater than using an organic peroxide crosslinking method. Appellants maintain that even assuming one practicing the invention of Honda would seek to improve stress cracking resistance, such a person skilled in the art would not look to the teachings of Scott since Scott admits that the physical properties of a silane crosslinked polyolefin are comparable to those obtained by conventional methods. One would not seek to use the teachings of Scott if no physical benefits over the prior art methods are realized. The Examiner's argument is simply not persuasive.

Finally, even if the references could somehow be combined, they would not meet all the recitations of the present claims. As detailed above, Honda clearly fails to disclose a crosslinkable thermoplastic. It only discloses a crosslinkable

ethylene- $\alpha$ -olefin copolymer rubber. Thus, even if there was proper motivation to combine the two references, the most such a combination would disclose would be a silane grafted crosslinkable ethylene- $\alpha$ -olefin rubber, which is clearly distinguishable from the crosslinkable thermoplastic of the present claims. For at least these reasons, the combination of Honda and Scott fails to render the present claims unpatentable under 35 U.S.C. §103(a).

### CONCLUSION

In view of the foregoing, Applicants submit that claims 21-30 are in condition for allowance. Applicants respectfully request early notification of such allowance. Should any issues remain unresolved, the Examiner is encouraged to contact the undersigned in an attempt to resolve any such issues.

If any fee is due in conjunction with the filing of this Response, Applicants authorize deduction of that fee from Deposit Account 06-0308.

Respectfully submitted,

FAY, SHARPE, FAGAN,  
MINNICH & MCKEE, LLP

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\_\_\_\_\_  
Timothy E. Nauman, Reg. No. 32,283  
Joseph E. Waters, Reg. No. 50,427  
1100 Superior Avenue  
Seventh Floor  
Cleveland, OH 44114-2518  
216/861-558